



Australia Awards

RESEARCH TITLE:

Climate Variability and Child Undernutrition in Cambodia: Spatial Analysis of DHS 2021–2022 and Satellite-Derived Environmental Data

SIGNIFICANCE OF STUDY

The findings of this study directly support Cambodia's national frameworks such as the Climate Change Strategic Plan and the School Feeding Policy by providing the data-driven evidence needed to shift from generic aid to precision, climate-resilient nutrition strategies and targeted public health interventions.

RESEARCH KEY FINDINGS

- Stunting 23.2%, underweight 16.4%, and wasting 9.9%
- Stunting was highest in the northeast (Ratanakkiri, Mondulkiri); wasting was more dispersed in central/southern areas; underweight overlaps with high-stunting regions (Figure 1).
- Average temperatures were 24.0°C at night and 32.9°C during the day.
- Maternal education was a significant protective factor, significantly lowering stunting ($\beta = 0.27$, $p = 0.009$), wasting ($\beta = 0.177$, $p = 0.049$), and underweight ($\beta = 0.31$, $p = 0.002$).
- Household poverty was positively associated with increased child wasting ($\beta = 0.174$, $p = 0.053$) and underweight ($\beta = 0.246$, $p = 0.011$).
- Higher vegetation levels (EVI) in highland areas were the strongest environmental predictor of stunting ($\beta = 1.334$, $p = 0.014$).
- A higher number of annual wet days is significantly protective against underweight prevalence ($\beta = -0.169$, $p = 0.013$).
- Drought episodes show a positive connection with stunting and underweight in unadjusted models, and a marginal association with acute child wasting in multivariable models.

KEY RECOMMENDATIONS

Policymakers should prioritise geographically targeted interventions that integrate nutrition, climate resilience, and equitable access to services. Strengthening maternal education, promoting household food security, and implementing climate-adaptive agricultural strategies are likely to yield substantial improvements in child growth outcomes.

RESEARCH QUESTIONS

- Q1. To what extent does climate variability affect child nutritional status in Cambodia?
- Q2. How do climate-related and socioeconomic factors jointly influence childhood malnutrition in Cambodia?

RESEARCH METHODOLOGY

Child anthropometric data from the Cambodia Demographic and Health Survey (CDHS) 2021–2022 were integrated with satellite-derived climate and environmental raster data and analyzed using geospatial mapping, scatter plot correlation analysis, and multivariable linear regression to identify factors associated with child undernutrition in Cambodia.

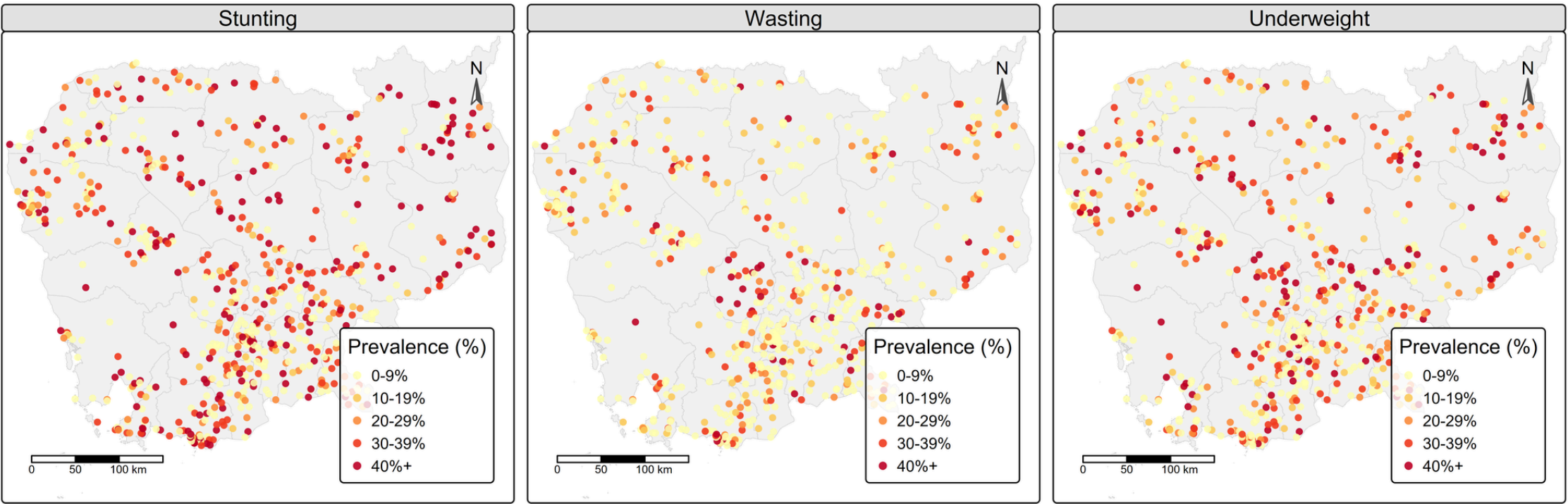


Figure 1. Geographical prevalence of Stunting, Wasting, and Underweight in Cambodia



Training on statistical and data analysis of CDHS dataset to obtain child nutritional data Perform climate and spatial data analysis



Research finding dissemination to medical students at Stung Treng Regional Training Center for Health, Stung Treng province.